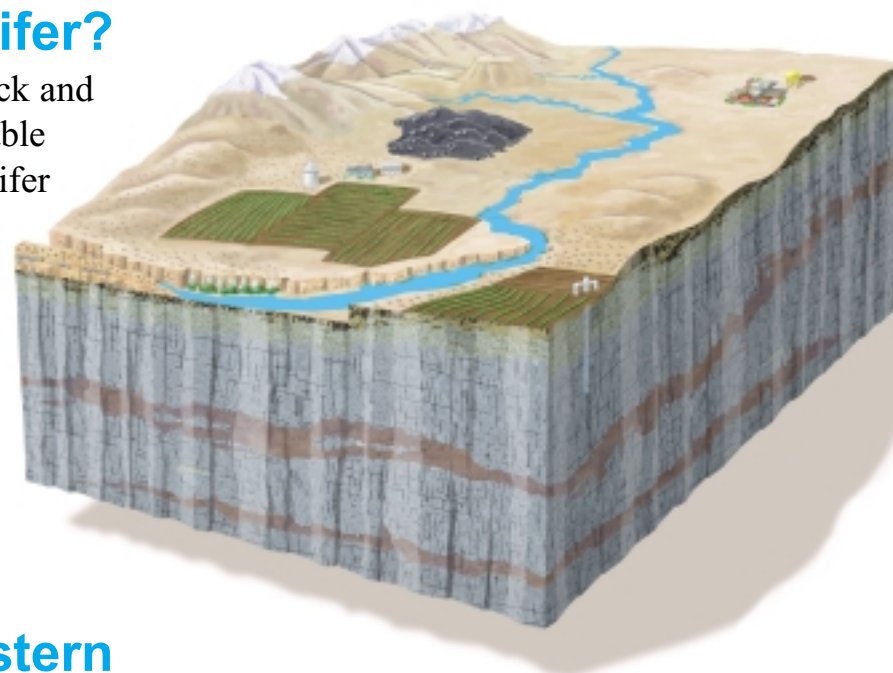


# The Eastern Snake River Plain Aquifer

## What is an aquifer?

An aquifer is a body of rock and sediment that will yield usable quantities of water. An aquifer isn't like an underground river or lake, but more like a giant sponge or a network of tiny interconnected pipes that can hold and transport water.



## What is the Eastern Snake River Plain Aquifer?

The Eastern Snake River Plain Aquifer is one of Idaho's treasures. It's one of the largest, most productive aquifers in the world. It covers over 10,800 square miles of southern Idaho, stretching from Ashton to King Hill. The aquifer contains an estimated billion acre feet of water, about as much as Lake Erie and 600 times the capacity of American Falls Reservoir.

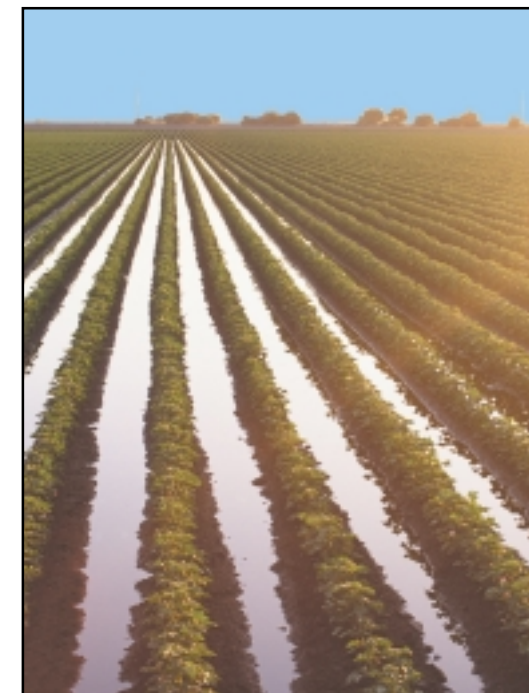
## What is the aquifer made of?

About 90% of our aquifer is basalt, lava erupted from fissures and volcanoes during the past few million years. The remaining 10% of the aquifer is sediments from rivers, lakes, and wind-blown dust. The fractured nature of the aquifer's basalt is what allows our aquifer to hold and transport so much water. Basalts saturated with water are as much as 4,000 feet deep in the center of the Eastern Snake River Plain.




## How does water flow?

Water flows through the aquifer via spaces in rocks and sediments, through larger cracks in rocks and tiny holes between rock grains. Water can take a convoluted path as it zigs and zags around rock grains. It travels more quickly through permeable areas—rock layers containing lots of connected spaces. Water flows most easily through the upper 200 to 300 feet of our aquifer.



## Where does water in the aquifer come from?

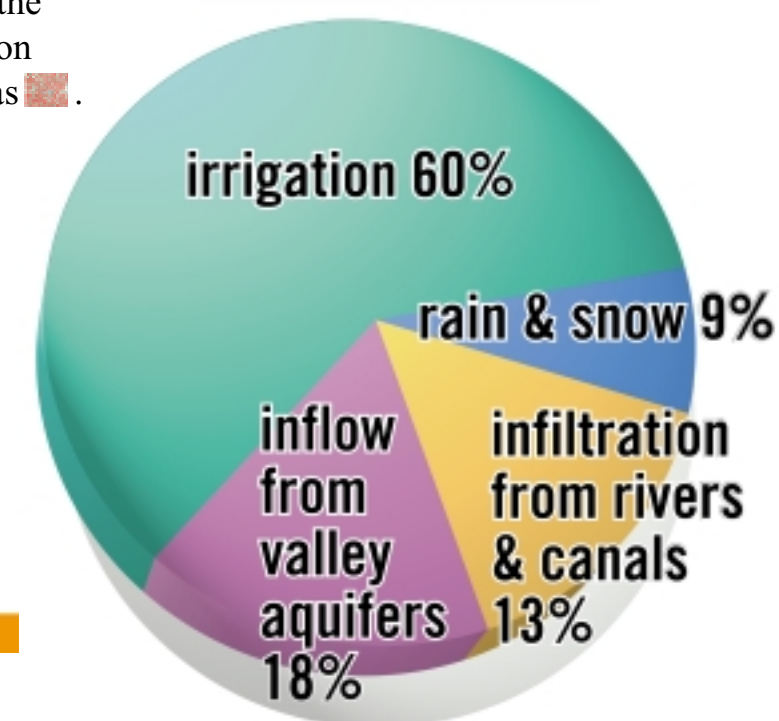
About 60% of the water going into the aquifer (called *recharge*) comes from irrigation. Other recharge comes from small aquifers in valleys along the edge of the plain, infiltration from rivers and canals, and precipitation (rain and snow). On the image below irrigated fields appear as .

## Where does the water go?

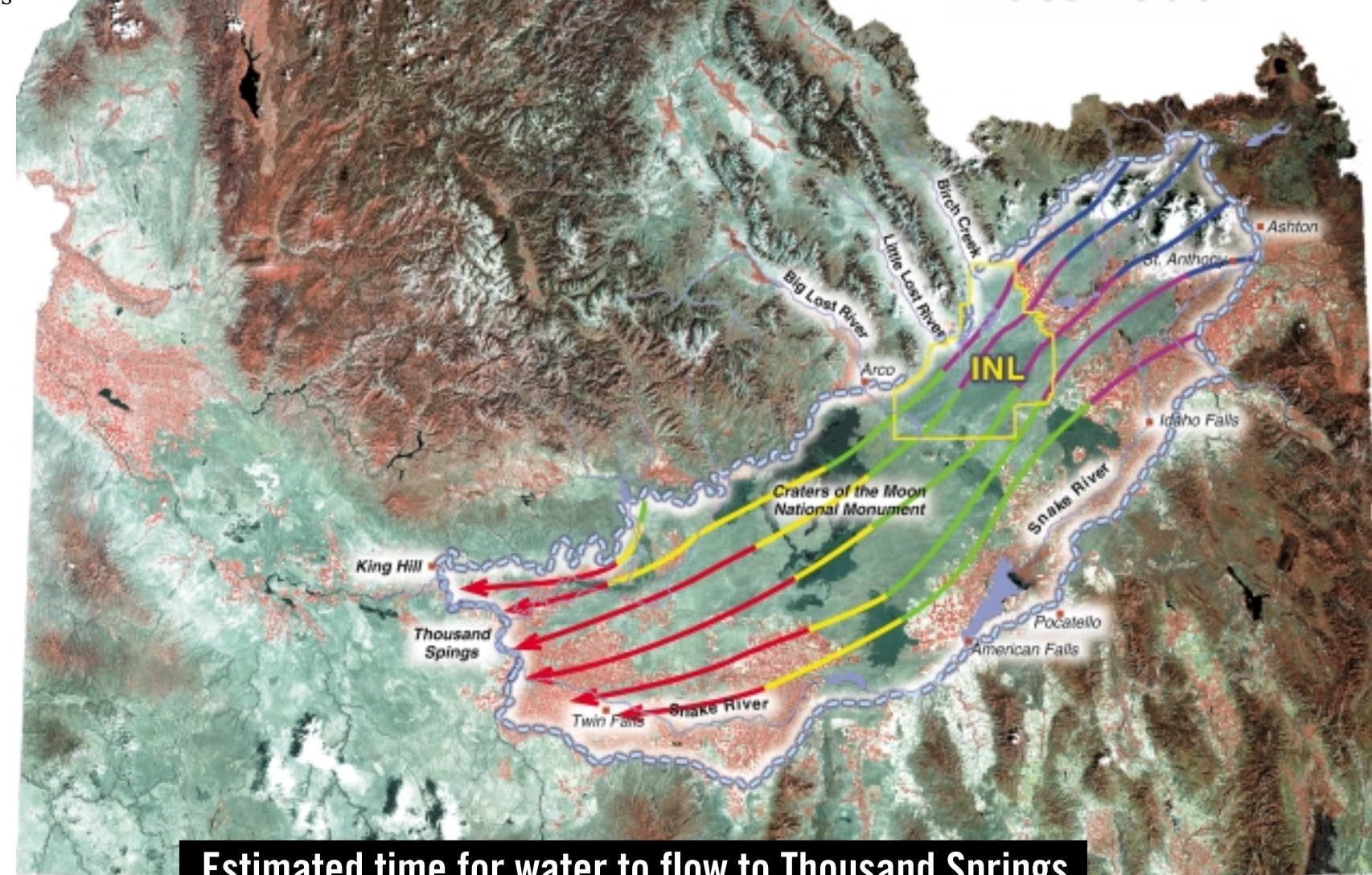
About 86% of the water going out of the aquifer (called *discharge*), about 7.1 million acre feet, eventually flows into the Snake River. Groundwater pumping accounts for 14%, or 1.1 million acre feet, of the aquifer's discharge. Of the groundwater pumped, 95% is for irrigation, with the rest for drinking water and commercial or livestock use.

14% Groundwater pumped  
86% Snake River gains

## Water In



## Water Out



## How fast does water flow in the aquifer?

Water in the aquifer generally flows from recharge areas on the northern and eastern border of the plain to the Snake River at Thousand Springs.

The aquifer flows probably between 1 to 10 feet per day, much slower than a river, but fast for an aquifer. Water beneath the INL probably takes about 150 to 250 years to travel to Thousand Springs.

### References:

Ackerman, D.J., 1995, *Analysis of steady-state flow and advective transport in the eastern Snake River Plain aquifer system, Idaho*. USGS Water Resources Investigations Report, 94-4257, 25 p.  
Linholm, G.F., 1993, *Summary of the Snake River Plain Regional Aquifer System Analysis in Idaho and Eastern Oregon*. USGS Open File Report, 91-98, 62 p.  
Idaho Department of Water Resources, 1999, *Feasibility of Large-scale recharge of the Eastern Snake River Plain aquifer system*, 260 p.

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